CALIFORNIA STATE DEPARTMENT OF PUBLIC HEALTH
WALTER M. DICKIE, M.D., Director

Weekly Bulletin

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Standards Set by Southern California Sewage Treatment Plants[*]

By C. G. Gillespie, Chief, Bureau of Sanitary Engineering, Berkeley

Southern California has inaugurated several procedures in both water treatment and sewage treatment which are new, at least in California. For example, there is the color problem in the deep wells at Wilmington, which is dealt with most successfully by an original scheme of color removal, involving prechlorination, ferric chloride precipitation and rapid sand filtration. The American States Water Service Company has made varied, ingenious and successful use of sand and carbon filters, and of super and dechlorination of well waters in the Culver City-Lennox District where extremely troublesome fungus growths and hydrogen sulphide have come on as water tables lowered. Beverly Hills has set a record for ornateness and completeness of two water filtration and softening plants dealing with a similar problem and with hardness in addition. Imperial Valley should also be mentioned for at least two daring and quite successful water filtration plants dealing with the highly turbid Colorado River water. And of course, the standards of safety and laboratory control of water supplies are especially high in the south, thanks to the several full time health departments and extent of chlorination of water supplies. No one place in California has approached Los Angeles in the perfection of water chlorination and laboratory control of the system.

In the field of sewage disposal, a number of devices and schemes got their introduction here. For example, the joint handling of sewage disposal on a large scale, such that four sewage treatment works serve some thirty-four cities; in Los Angeles the first use of fine sewage screens and the first use of incineration for the screenings; the development of two stage sludge digestion by Los Angeles County sanitation districts; the largest instances of the application of chlorine in arresting odor production in sewers, by these same districts and by the Orange County cities; at Newport the first application of chlorinated iron for odor control; and at Whittier, the first use of preaeration in odor control. For over ten years the Pasadena sewage treatment plant has been known throughout the country as a proving ground of several new ideas in sewage treatment, including sludge conditioning and filtering, reclamation of sludge for fertilizer by kiln drying, grease removal by aeration and more recently, the only large scale heat exchange incinerator in the country for destroying the odors in the kiln gases.

In a sense, southern California has shown a conspicuous alertness in the field of sanitation and health protection and there are some definite trends or standards in such matters as the large amount of laboratory control of water supplies, perfection of water chlorination, cleanliness of mountain streams, cleanliness of beaches, odor control in sewers and sewage treatment, and great activity in building sewerage works. In the last twenty years, thirty-three high grade plants have been built in the south, out of ninety in the state. These thirty-three plants serve forty-seven places, or about half the cities in the State having high grade sewage works. Thirty-seven "lower grade" plants have been built in the south, and close to one hundred elsewhere in the state. But these thirty-seven plants serve fifty-two places. The south has been particularly active in establishing new sewer systems. Sixty-one new sewer systems have gone in since 1915, contrasted with eighty-two for the rest of the state.

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[*] Prepared for Eighth Annual Session, Institute of Government, University of Southern California, June 15-19, 1936.

There is an unmistaken sensitiveness to sewage and sewage pollution, particularly within the reaches of the metropolitan area of Los Angeles, including Orange County and the mountains and beaches, perhaps because the same people flock to them for outdoor recreation. In the outlying counties of the south, this same degree of interest is not so noticeable and, as elsewhere in the state, there is more of a tendency for people to become adjusted to matters of sewage disposal, and to live in peace with conditions, which in the metropolitan district have repeatedly led to fierce conflicts. For example, there were the sewer systems in Beverly Hills and Hollywood, now history; the sewer farm proposed for Anaheim, which was blocked by the incorporation of Stanton, a place that had no other earthly excuse for incorporation; similarly, the incorporation of West Covina and later the annexation of more territory to block the City of Covina in not one, but two sewage disposal projects; the incorporation of Monterey Park to block a sewer farm for Pasadena in the Monterey Park hills; later, the complaint of some 6000 people in Alhambra against the sludge disposal at the then new activated sludge plant of Pasadena; the simultaneous nuisances from the various sewer farms of the Orange County cities which caused them to join in an outfall to the ocean; the blocking at every turn of local sewage disposal for Compton, Watts and Huntington Park, and which finally culminated in the White Point outfall to the ocean. However, the new sector of conflict then lay around San Pedro for many years. There were similar experiences in Glendale, Burbank, and in the beach cities from Hermosa to Santa Monica. The final answer was sewerage to the Los Angeles city system.

Just why this Los Angeles area should be so universally sewered and at the same time be so violently opposed to sewage disposal, forms an interesting subject upon which to muse. I have explained it all to my own satisfaction as the product of the boom days with skyrocketing of land values for subdivision and the tremendous influx of eastern and midwest people, naturally imbued with high ideas for better homes and better cities than those they had left behind. As a result, no subdivision could succeed without a sewer system and yet no subdivision could succeed with a sewage disposal plant next door. It made a difficult problem. Since subdivision was just around the corner for every square foot of land, it made sewage disposal almost impossible, both at inland plants and even at seaboard. Gradually, plans have been perfected for handling the sewage of almost all of the metropolitan area in and around Los Angeles through outfalls to the ocean, and the processing of the sewage has been improved. Nearly ten million dollars are being expended for sewage treatment along the Southern California coast in the interest of beach cleanliness. I believe the same higher standards of sewerage and sewage disposal should be anticipated in any area to which there is a strong tide of urban migration.

It may be questioned whether the present advances have strictly the fixedness implied by the word "standards." Looking back over the years, the efforts and advances seem more like the sorties of troops seeking to penetrate the enemy lines, first here, then there.

The first sewage treatment methods were septic tanks and sewer farms. Then two-story Imhoff tanks replaced the one-story septic tank idea. Ocean outfalls, with or without treatment tanks, replaced sewer farms wherever possible. Odors from the sewage treatment at these waterfront plants started a run on fine screens. Then as fine screens proved disappointing in the matter of odor prevention and failed to remove grease, or even all the solids, a few places went in for very long outfalls to permit ocean disposal of raw sewage. Structural difficulties with some of the outfalls, sentimental objection to the disposal of raw sewage in the ocean and an increasing premium placed on beaches, free even of the suspicion of a sewer, turned attention to the use of more inland sloughs and harbors, or to short ocean outfalls preceded by complete sewage treatment. Successful odor control at these plants was of course at the heart of this idea since adequate isolation was and is almost impossible. As noted elsewhere, the sorties into odor control are especially numerous.

The problem of unsightly and more or less odorous sludge beds at these ocean front locations first argued for greenhouse drying and more recently for digesting the sludge, then disposing of it through ocean outfalls under night time and other favorable conditions, so as to prevent its return to shore.

Since the bulk of the unsolved sewage disposal in the south is along the seacoast where conditions in each place are much the same and extremely exacting, the effort should be to settle on the few guiding principles that would make sewer systems possible and sewage disposal tenable. Present features that seem to me to have permanent worth are: Centralizing plants to maximum degree; securing the best isolation of plant and outfall that is possible in each case; use of settling tanks and sludge digestion in each case; use of outfalls carefully engineered for foundation and stability of the entire line against most critical surf and ground swells, and designed to be immune against plugging by sand and to be of such additional length as may be needed for safe disposal of sludge and effluent so as to prevent any conspicuous sewage field and sewage contamination on shore. Chlorination to enhance the reputations for safety of the beaches is indicated, and also use of proven odor control measures in these plants. It must be set down that the beaches in name and in fact must be kept clean. The principal present sortieing will be into sound engineering of the outfall structures. The cities must devote their best talent without skimping on this cost, either in the preliminary surveys or in the actual construction.

Inland, the pattern of sewage disposal will probably continue along its present course with sewer farming the rule, accompanied by high grade plants in critical neighborhoods, and cheaper plants elsewhere.

Much debate as to method and place of sewage disposal will probably continue in the back country of the metropolitan area, which seems too far from the ocean for use of the county sanitary districts system with its ocean outfall. However, the State Board of Public Health, after many bitter hearings, still feels that such cities should stretch a point to finance connection in the centralized system. If they do not do this and resort to local disposal, the burden is heavy upon them to build and maintain as a pattern, odor free, high grade sewage treatment plants in the safest locations attainable. Along with this idea should go the procurement of enough land to ease the constant necessity for almost perfect odor control. Any odor control that is that severe is bound to require constant attendance of a high order and withal it may not be as dependable or as wise an investment as longer outfalls or even for more land for better isolation.

We demand of men that they follow the herd; we suspect them if they express doubts of the tradition.—Laski.

INSTRUCTION FOR NURSES AND PUBLIC HEALTH WORKERS

It will be noted that this publication has devoted a large amount of space in making announcements of courses for public health nurses and public health workers in many of the institutions for higher learning in California. This is done as a matter of policy for it is recognized that public health workers must be equipped with the latest and most authoritative knowledge in their various lines of endeavor. It is highly important that such workers should occasionally review their knowledge in subjects with which they may be associated intimately. It is also important that they keep abreast of all developments that may have occurred recently. For this reason the State Board of Public Health takes every possible means of advising public health workers of institutions where various courses in public health subjects are available during the summer months. It is only through education that advances may be made, not only for the benefit of the individuals concerned, but also for the greater benefit of the general public.

Education is a life-long process. Much of it goes on spontaneously. In that way it goes on when as infants we are finding our hands; and is still going on years later when, with those same hands, we endorse a speculator's note. Every experience leaves with us an educational by-product. In numberless ways we learn, yet remain the while unconscious that we are being schooled. It is only when we become aware of some lack in ourselves, some deficiency, that we are stirred to the point of making a conscious effort to learn.—U. C. Extension Division.

MORBIDITY

Complete Reports for Following Diseases for Week Ending May 30, 1936

Chickenpox

427 cases: Alameda County, 4, Alameda 5, Oakland 49, Piedmont 6, Pleasanton 1, Butte County 1, Angels Camp 1, Concord 1, Martinez 2, Fresno County 5, Fresno 19, Eureka 1, Kern County 3, Lake County 4, Los Angeles County 26, Alhambra 5, Burbank 5, Culver City 5, Glendale 2, Huntington Park 2, Long Beach 12, Los Angeles 37, Montebello 1, Pasadena 2, Redondo 1, Santa Monica 1, Lynwood 2, South Gate 7, Monterey Park 3 Monterey County 2, Salinas 2, Orange County 26, Anaheim 12, Fullerton 1, Huntington Beach 1, Santa Ana 5, La Habra 2, Tustin 1, Riverside County 1, Riverside 1, Sacramento County 1, Sacramento 7, San Diego County 10, Escondido 5, San Diego 23, San Francisco 38, San Joaquin County 9, Stockton 11, Tracy 3, San Luis Obispo County 11, Paso Robles 1, San Mateo County 1, Daly City 1, Redwood City 1, Santa Barbara County 9, Santa Barbara 2, Santa Clara County 4, Palo Alto 4, San Jose 5, Sunnyvale 3, Solano County 1, Ventura County 5, Santa Paula 5.

Diphtheria

44 cases: Oakland 6, Butte County 1, Imperial County 1, Los Angeles County 4, Long Beach 1, Los Angeles 7, Pasadena 1, Orange County 2, Santa Ana 6, San Bernardino County 1, San Francisco 1, Stockton 3, Tracy 1, San Mateo County 2, San Jose 6, Tulare County 1.

German Measles

323 cases: Alameda County 3, Alameda 4, Berkeley 36, Oakland

48, Piedmont 6, San Leandro 3, Butte County 1, Martinez 5, Pittsburg 1, El Dorado County 1, Woodland 2, Fresno County 2, Eureka 19, Imperial 1, Kern County 3, Los Angeles County 3, Claremont 1, Glendale 3, Long Beach 12, Los Angeles 7, Pasadena 4, Santa Monica 1 ,Sierra Madre 1, Whittier 1, San Rafael 1, Monterey County 1, Monterey 1, Calistoga 1, Grass Valley 7, Orange County 5, Anaheim 1, Fullerton 1, Huntington Beach 2, Newport Beach 3, Santa Ana 9, La Habra 1, Tustin 1, Colfax 5, Riverside 9, Sacramento 4, Ontario 1, San Bernardino 1, San Diego County 1, San Diego 7, San Francisco 33, San Joaquin County 13, Stockton 33, San Luis Obispo 6, Burlingame 1, Menlo Park 3, Santa Maria 1, Santa Clara County 1, Santa Cruz 2.

Influenza

85 cases: Berkeley 1, Oakland 2, Eureka 1, Kern County 1, Bakersfield 1, Los Angeles County 2, Claremont 1, Glendale 1, Los Angeles 10, Whittier 1, Madera County 9, Merced County 1, Grass Valley 44, Orange County 1, Sacramento County 6, San Bernardino County 1, San Diego County 1, San Francisco 1.

Malaria

One case: Riverside County.

Measles

1762 cases: Alameda County 2, Alameda 6, Berkeley 40, Emeryville 7, Oakland 119, Pleasanton 6, San Leandro 5, Butte County 91, Calaveras County 1, Williams 3, Contra Costa County 8, Antioch 1, Concord 1, Martinez 4, Pinole 5, Pittsburg 10, Richmond 5, Fresno County 12, Fresno 17, Orland 6, Humboldt County 1, Eureka 1, Imperial County 4, Westmoreland 1, Kern County 7, Los Angeles County 192, Alhambra 14, Arcadia 3, Azusa 6, Beverly Hills 13, Burbank 15, Compton 7, Culver City 4, El Segundo 1, Glendale 38, Hermosa 3, Huntington Park 3, Long Beach 8, Los Angeles 215, Monrovia 8, Montebello 4, Pasadena 27, Pomona 31, Redondo 10, San Fernando 14, San Gabriel 11, Santa Monica 15, Sierra Madre 2, South Pasadena 8, Whittier 8, Lynwood 22, South Gate 9, Monterey Park 11, Bell 1, Gardena 1, Madera County 1, Marin County 2, San Rafael 9, Yosemite National Park 1, Merced County 17, Monterey County 17, King City 1, Napa County 1, Grass Valley 1, Orange County 13, Anaheim 2, Newport Beach 2, Orange 7, Santa Ana 2, Laguna Beach 3, Tustin 1, Riverside County 45, Beaumont 4, Corona 9, Riverside 38, Sacramento County 23, Sacramento 1, San Bernardino County 97, Ontario 1, Redlands 8, San Bernardino 7, Upland 4, San Diego County 48, Coronado 1, Oceanside 8, San Diego 60, San Francisco 120, San Joaquin County 4, Lodi 1, San Luis Obispo County 2, San Luis Obispo 11, San Mateo County 3, Burlingame 17, Daly City 1, Redwood City 5, San Mateo 7, South San Francisco 2, Santa Barbara County 4, Santa Barbara 5, Santa Clara County 4, Los Gatos 3, Palo Alto 2, San Jose 3, Willow Glen 11, Santa Cruz 1, Shasta County 1, Solano County 1, Benicia 8, Vacaville 1, Vallejo 7, Petaluma 1, Santa Rosa 2, Stanislaus County 5, Red Bluff 7, Ventura County 11, Ventura 9, Yuba County 1, California 1.*

Mumps

716 cases: Berkeley 5, Oakland 8, San Leandro 1, Butte County 21, Calaveras County 2, Colusa County 3, Williams 2, Contra Costa County 10, Richmond 1, Placerville 2, Fresno County 12, Fresno 23, Orland 36, Eureka 9, Kern County 3, Kings County 1, Los Angeles County 51, Alhambra 8, Beverly Hills 18, Burbank 1, Compton 1, Culver City 2, Glendale 4, Huntington Park 1, Inglewood 3, Long Beach 50, Los Angeles 50, Montebello 5, Pasadena 8, Pomona 19, Redondo 1, Santa Monica 1, South Pasadena 1, Whittier 4, Torrance 1, Lynwood 12, Hawthorne 1, South Gate 1, Monterey Park 14, Madera 1, Marin County 1, Grass Valley 2, Orange County 3, Anaheim 12, Brea 1, Fullerton 4, Huntington Beach 1, Newport Beach 1, Orange 1, Santa Ana 14, Seal Beach 1, Colfax 1, Riverside County 24, Riverside 13, Sacramento County 47, Sacramento 34, San Bernardino County 6, Needles 1, Ontario 8, San Bernardino 2, Upland 1, San Diego County 3, Coronado 1, Escondido 6, San Diego 54, San Francisco 3, San Joaquin County 6, Stockton 6, Tracy 9, Santa Clara County 1, Palo Alto 2, San Jose 4, Vacaville 3, Vallejo 5, Stanislaus County 3, Oakdale 4, Ventura County 11, Santa Paula 6, Ventura 10, Yolo County 4.

Pneumonia (Lobar)

59 cases: Alameda County 1, Berkeley 1, Oakland 3, Bakersfield 1, Lake County 1, Los Angeles County 6, Compton 1, Glendale 1, Los Angeles 27, Pasadena 1, San Fernando 1, Santa Monica 1, Sierra Madre 1, Roseville 1, Riverside 1, San Bernardino County 1, Ontario 1, San Diego County 3, San Francisco 4, Santa Barbara County 1, Vallejo 1.

Scarlet Fever

324 cases: Alameda County 1, Alameda 3, Berkeley 5, Oakland 6, Piedmont 1, Butte County 5, Chico 4, Colusa 6, Antioch 1, El Cerrito 1, Fresno County 4, Fresno 7, Eureka 1, Imperial County 1, Kern County 5, Hanford 4, Los Angeles County 23, Arcadia 2, Avalon 1, Beverly Hills 2, El Monte 2, Glendale 3, Huntington Park 2, Long Beach 4, Los Angeles 49, Pasadena 2, Pomona 3, Santa Monica 2, Lynwood 1, Hawthorne 1, Marin County 1, Mendocino County 1, Merced County 1, Alturas 6, Monterey County 2, Pacific Grove 2, Salinas 2, Grass Valley 4, Orange County 1, Huntington Beach 1, Orange 1, Santa Ana 3, Laguna Beach 2, Riverside County 2, Riverside 2, Sacramento County 9, Sacramento 5, San Bernardino County 9, Colton 1, San Bernardino 1, San Diego County 3, San Francisco 64, San Joaquin County 2, Lodi 1, San Mateo County 2, Burlingame 2, Daly City 6, Menlo Park 1, Santa Barbara 1, Santa Clara County 6, Gilroy 2, Palo Alto 2, San Jose 2, Santa Cruz 4, Solano County 2, Vacaville 3, Vallejo 1, Petaluma 1, Santa Rosa 1, Stanislaus County 1, Yuba City 1, Exeter 1, Ventura County 1, Yolo County 1, Yuba County 1, Marysville 3, California 1.*

Smallpox

No cases reported.

Typhoid Fever

14 cases: Imperial County 1, Los Angeles 1, Newport Beach 1, Riverside County 3, Riverside 1, Sacramento 1, San Diego 1, San Francisco 1, San Joaquin County 2, Red Bluff 1, Yolo County 1.

Whooping Cough

440 cases: Alameda County 1, Alameda 8, Berkeley 20, Oakland 6, Calaveras County 1, Richmond 1, Fresno County 3, Fresno 5, Kern County 7, Kings County 1, Los Angeles County 37, Alhambra 6, Beverly Hills 10, Compton 4, Glendale 5, Huntington Park 4, Long Beach 34, Los Angeles 51, Montebello 3, Pasadena 4, Pomona 10, Redondo 1, Santa Monica 4, Torrance 1, Lynwood 1, South Gate 1, Bell 5, Gardena 5, Marin County 1, Yosemite National Park 1, Merced 2, Monterey County 1, King City 3, Orange County 2, Anaheim 2, Brea 2, Orange 4, Santa Ana 2, Seal Beach 1, Riverside 5, Sacramento County 19, Sacramento 11, San Bernardino County 7, San Bernardino 1, Upland 2, San Diego County 14, Coronado 2, Oceanside 7, San Diego 40, San Francisco 25, San Joaquin County 7, Lodi 5, Stockton 4, San Luis Obispo 3, Santa Clara County 2, Palo Alto 2, San Jose 2, Willow Glen 4, Santa Cruz 3, Stanislaus County 3, Ventura County 1, Fillmore 4, Santa Paula 6, Yolo County 1.

Meningitis (Epidemic)

2 cases: Los Angeles County 1, Sacramento County 1.

Dysentery (Amoebic)

One case: Riverside.

Leprosy

One case: Placentia.

Pellagra

6 cases: Los Angeles County 1, Los Angeles 4, Dunsmuir 1.

Poliomyelitis

5 cases: Fresno 1, Kern County 1, Los Angeles County 1, Los Angeles 2.

Tetanus

One case: San Luis Obispo County.

Trachoma

281 cases: Alpine County 3, Butte County 2, Colusa County 10, Del Norte County 1, Fresno County 58, Humboldt County 12, Inyo County 2, Kings County 8, Lake County 23, Lassen County 5, Madera County 24, Mendocino County 31, Modoc County 17, Fort Bidwell 40, Siskiyou County 2, Sonoma County 6, Tulare County 37.

Paratyphoid Fever

2 cases: Monterey Park 1, Grass Valley 1.

Trichinosis

One case: Oakland.

Food Poisoning

25 cases: Los Angeles County 4, Burbank 3, Los Angeles 11, Whittier 2, Riverside County 2, Redwood City 1, Ventura County 2.

Undulant Fever

3 cases: Sacramento 1, San Diego County 1, Santa Maria 1.

Coccidioidal Granuloma

2 cases: Yuba County.

Septic Sore Throat (Epidemic)

3 cases: Montebello 2, San Diego 1.

Dysentery (Bacillary)

One case: Los Angeles.

Rabies (Animal)

17 cases: Kern County 1, Los Angeles County 7, Los Angeles 4, San Bernardino 1, San Diego 1, San Joaquin County 1, Visalia 2.

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* Cases charged to "California" represent patients ill before entering the state or those who contracted their illness traveling about the state throughout the incubation period of the disease. These cases are not chargeable to any one locality.

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